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September 7th | 2010

Ryan Chouest daily data transmission and report

**Period covered: 0857 hrs 09/06/2010 – 1100 hrs 09/07/2010**

**97.939 - Nautical miles covered**

**Vessel science party:**

Xiubin Qi ([xiubin.qi@csiro.au](mailto:xiubin.qi@csiro.au)), Andy Revill ([andy.revill@csiro.au](mailto:andy.revill@csiro.au)), Charlotte Stalvies ([charlotte.stalvies@csiro.au](mailto:charlotte.stalvies@csiro.au)), Stephane Armand ([stephane.armand@csiro.au](mailto:stephane.armand@csiro.au)), Tim MacEwan ([tem@cctechnol.com](mailto:tem@cctechnol.com)), Brett Bundick ([bbundick@cctechnol.com](mailto:bbundick@cctechnol.com)), Emily Burke ([emily.v.burke@gmail.com](mailto:emily.v.burke@gmail.com)), Criag Smith ([craig\\_howard\\_smith@yahoo.com](mailto:craig_howard_smith@yahoo.com)), Bobby Patrick ([rdpatrick@cctechnol.com](mailto:rdpatrick@cctechnol.com)), Matthew Baham ([MNB@cctechnol.com](mailto:MNB@cctechnol.com)), Curtis Walker ([cwalker@entrix.com](mailto:cwalker@entrix.com)), Rebecca Tedford ([rebecca.tedford@bp.com](mailto:rebecca.tedford@bp.com)), Eric Houston ([erich@metoc.co.uk](mailto:erich@metoc.co.uk)), Colleen Fanelli, ([colleen.fanelli@noaa.gov](mailto:colleen.fanelli@noaa.gov)).

**Contact details:**

+ 1 337 761 9830 – Sat phone  
+ 1 337-761-9830 – Broadband phone ship office 1  
+ 1 337-761-9827 – Broadband phone ship office 2  
+ 1 337-761-9826 - Broadband phone ship bridge

**Cruise notes:**

The *Ryan Chouest* continued the planned cruise 14 route. A 'cloverleaf' pattern was conducted over the location of CTD cast site #5 and #6 in an attempt to characterise the seep. We also created a rough grid pattern over the area southwest of the MC252 locality in order to further confirm the occurrence of seeps in the area. We continued to collect underway fluorometry and echo sounder survey data.

**Science results and preliminary interpretation:**

**Fluorometry results**

The Chelsea and Trios sensors indicate low levels inferred hydrocarbons concentrations through the reporting period (Figures 3 and 4).

**Surface Observations**

Sargassum was spotted on the surface throughout the route.

**EK-60 Echosounder results**

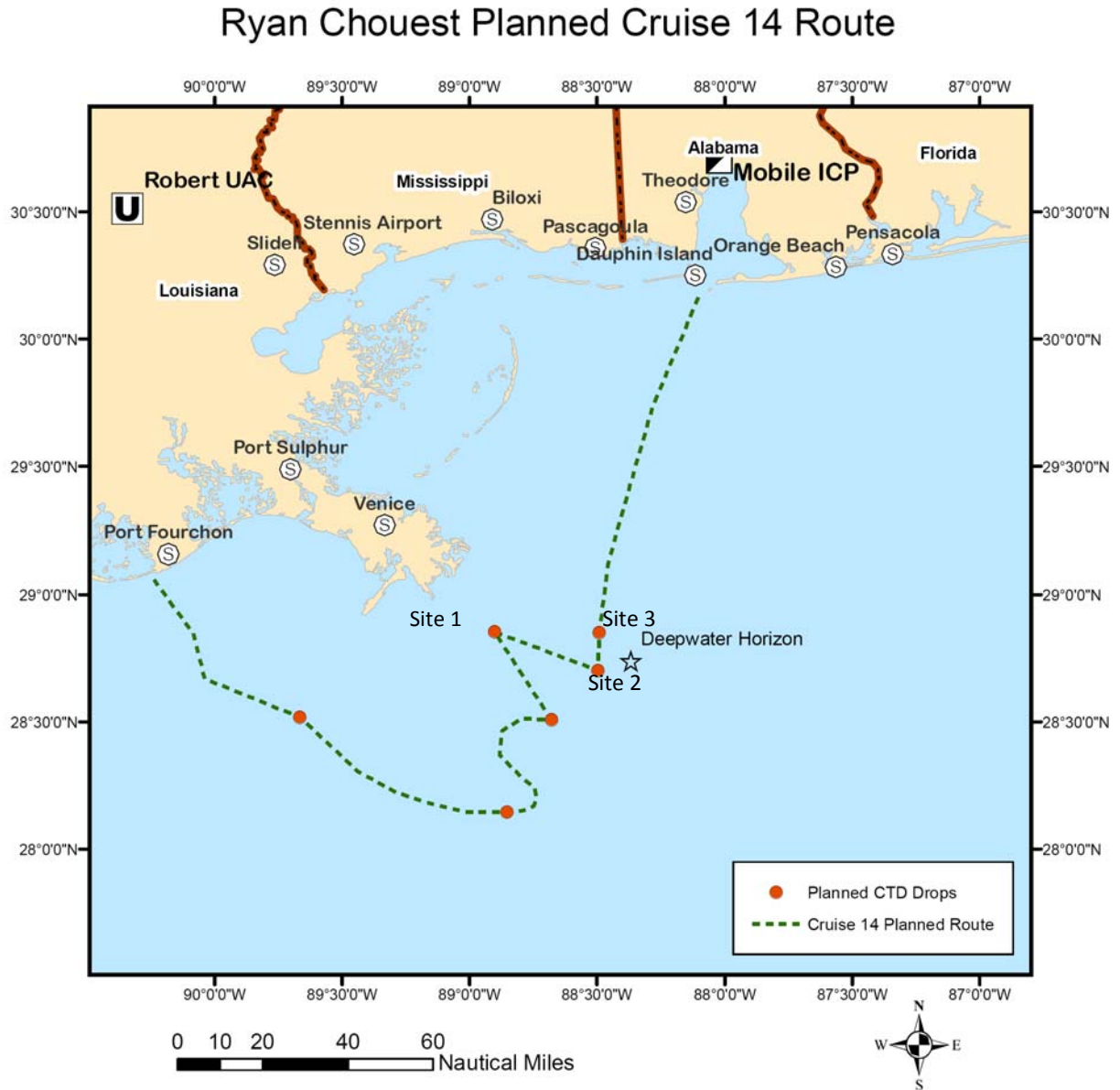
Attempt to re establish the location of the warm seeps at site 3 was successful (Figure 5 to Figure 8). To further define the contact we surveyed it from different directions in a 'clover leaf' pattern. A 3D image is being constructed based on the data collected. At site 2 no potential seep features could be captured in the echo sounder system even after surveying the area in a dense grid pattern.

**CTD Casts**

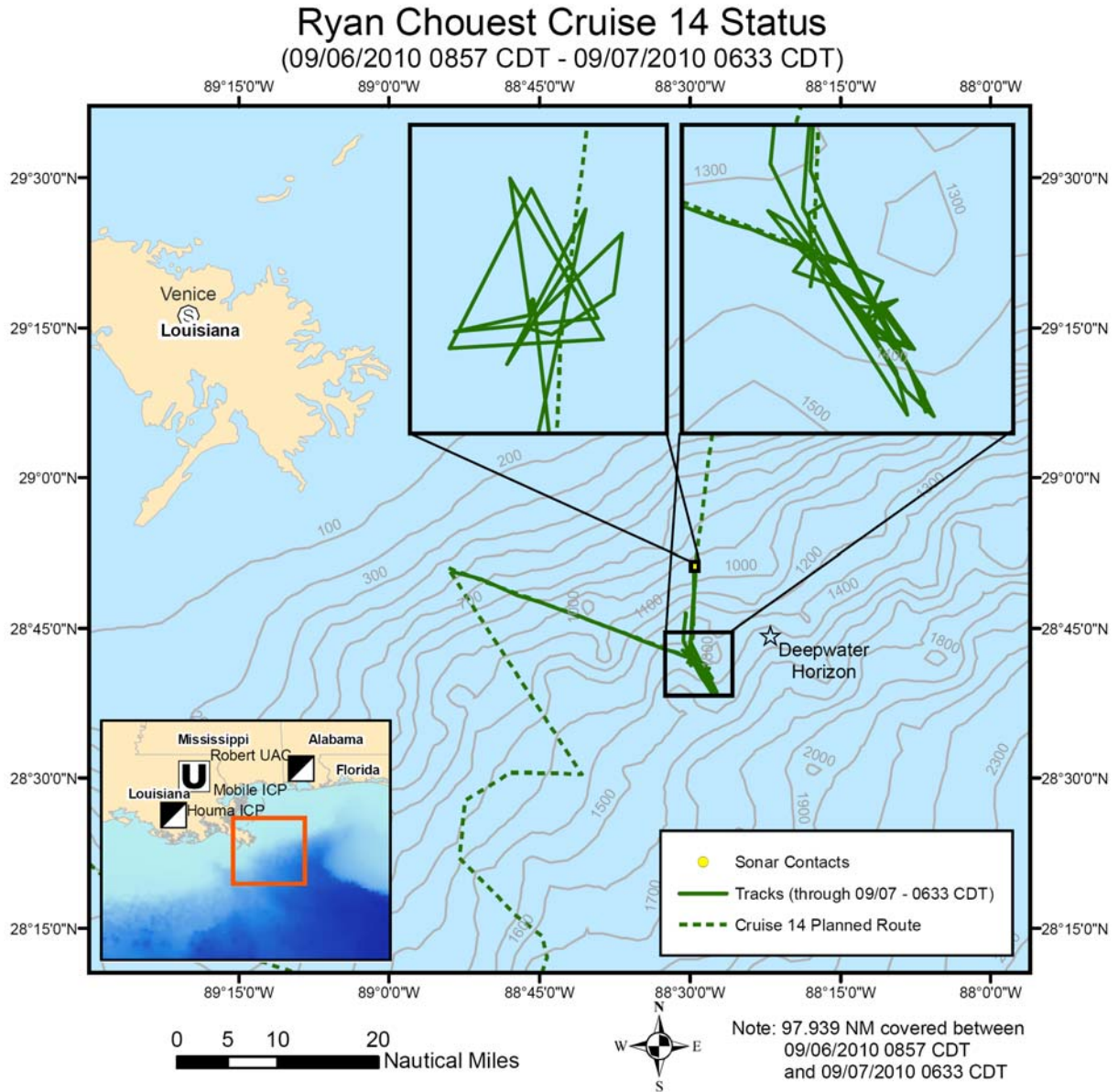
Two CTD casts (#5 and #6) were conducted following the successful reestablishment of the potential natural seeps at site3 (Figure 1, Figure 9 and Figure 10). CTD cast #5 in 880 m of water at N 28 51.135, W 088 29.511 and CTD cast #6 in 890 m of water at N 28 51.141, W088 29.512. In the sensor vertical

profiles of both casts, very minor increases were observed in the CDOM fluorometer and the PAH fluorometer along the water column close to the bottom. Water samples were collected at 877m, 750m, 600m and 220m in Cast 5 and at 870m, 750m, 600m, 390m and 220m in cast 6 for further GCMS analysis.

**Planned route for cruise 14:**



**Figure 1:** Planned route for Cruise 14 from 09/04/2010 – 09/08/2010.



**Figure 2:** Track through planned route for Cruise 14 from 09/06/2010 – 09/07/2010. Yellow dots represent sonar contact points.

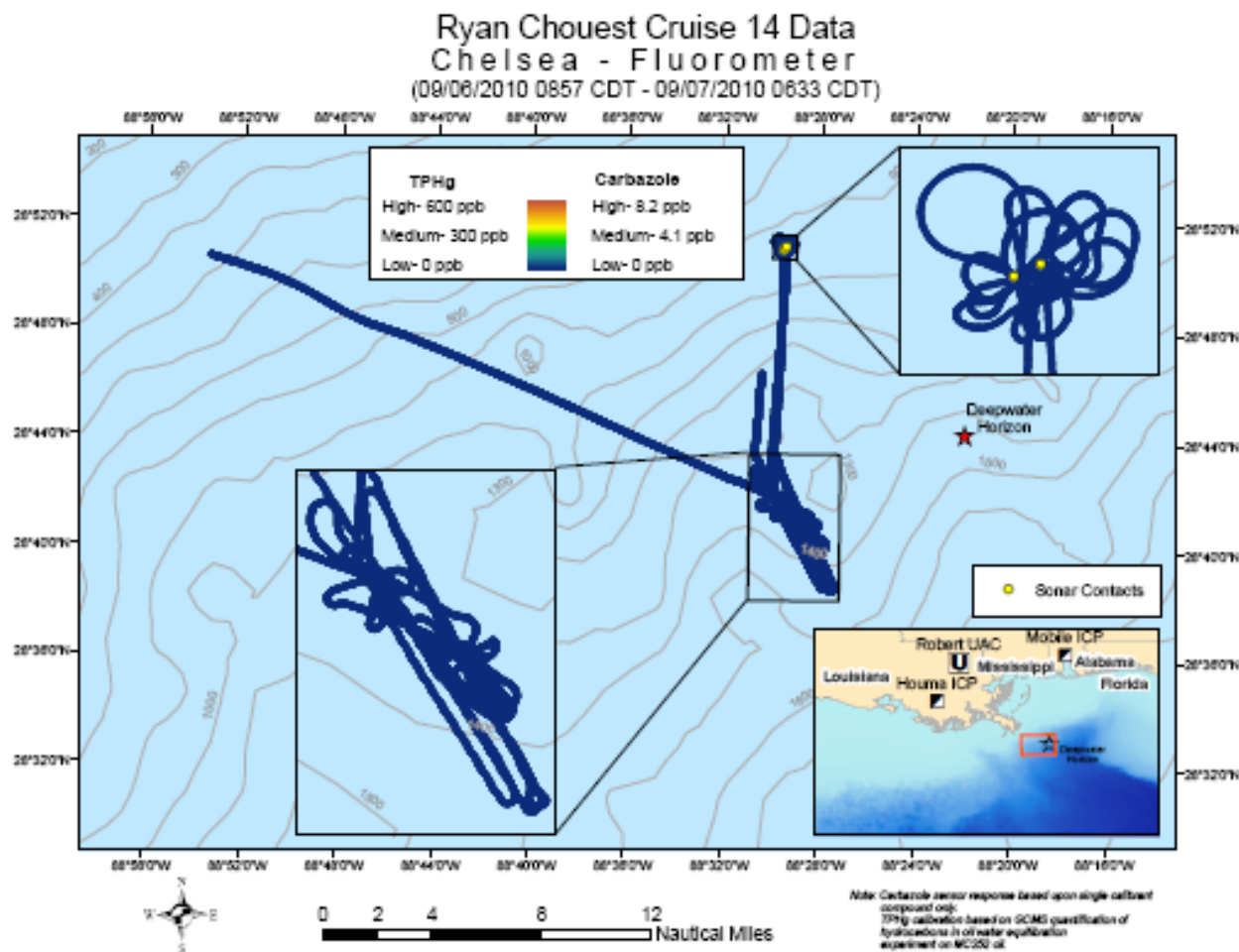


Figure 3. Chelsea fluorometer results plotted with location on cruise track 14. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.

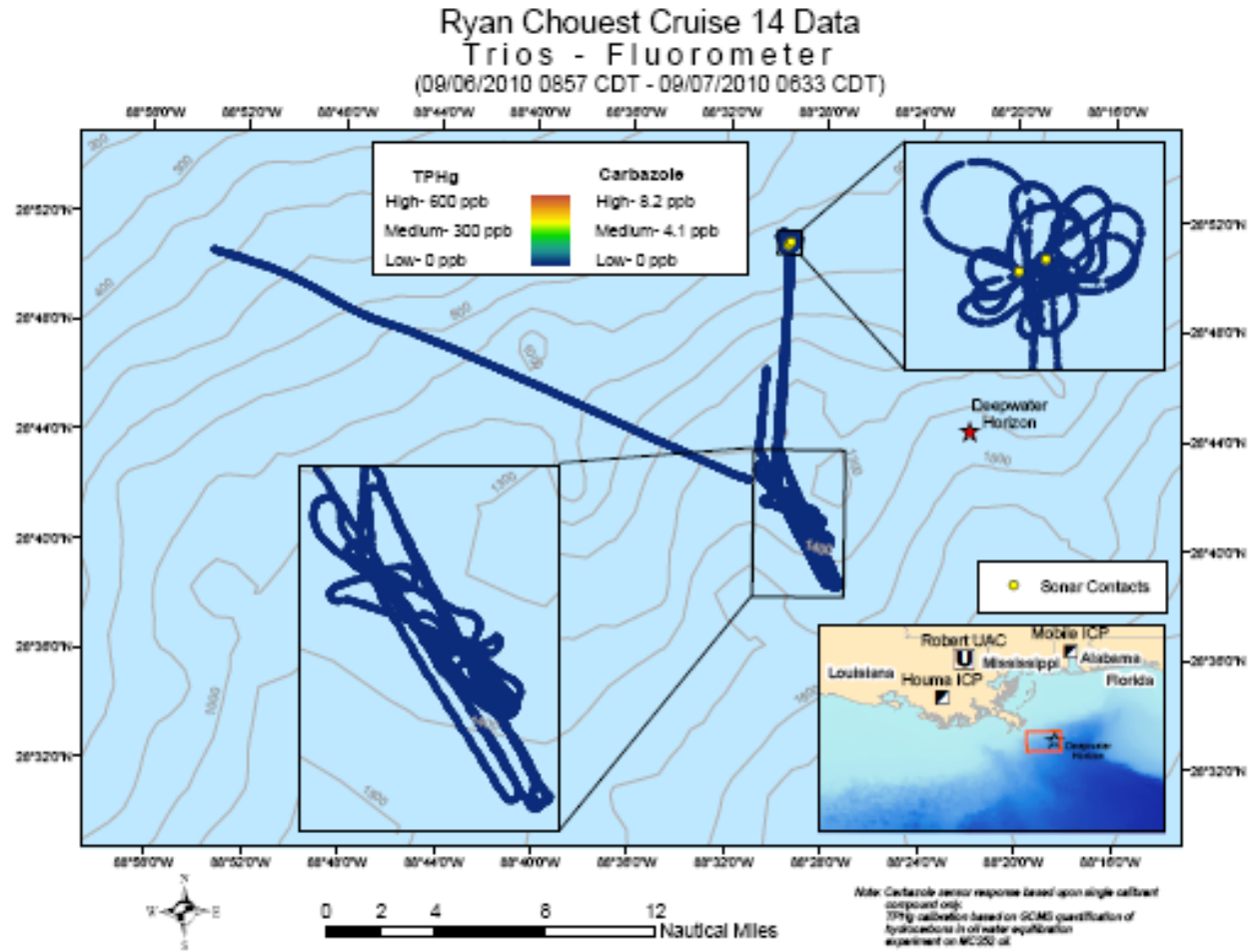
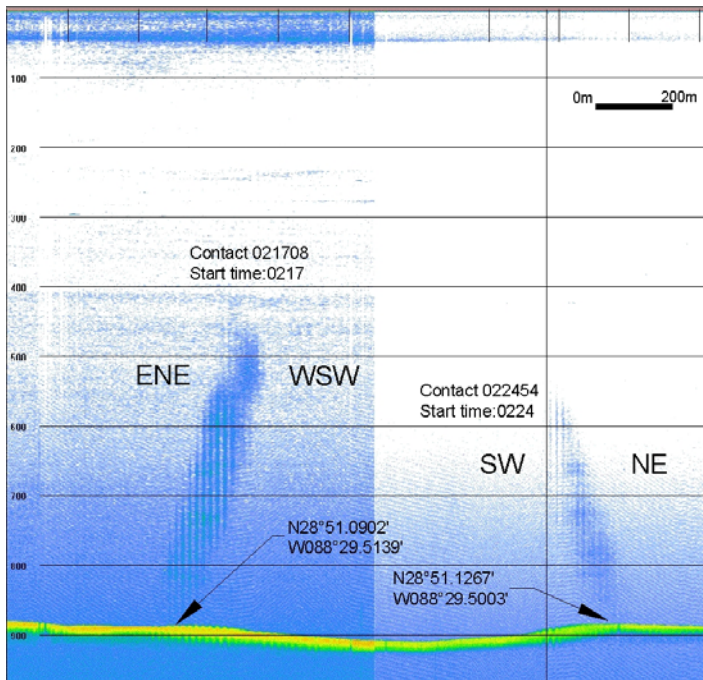
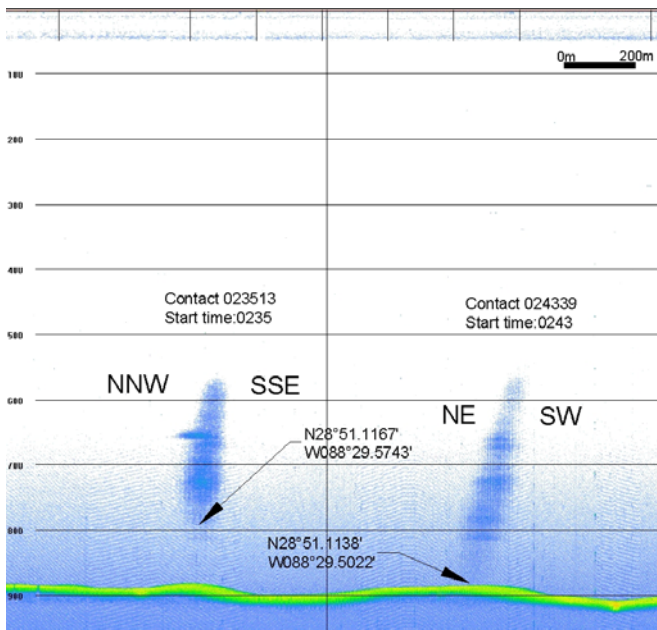


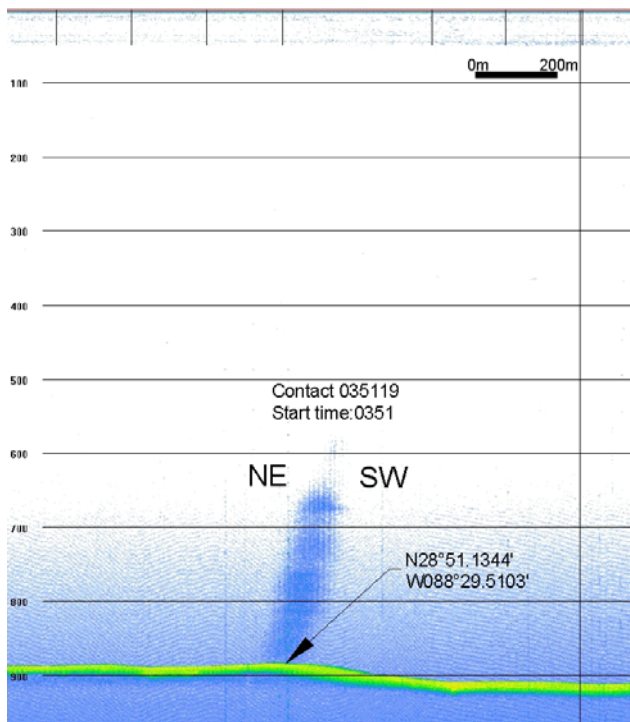
Figure 4. Trios fluorometer results plotted with location on cruise track 14. Breaks in data occur when either data quality is poor or the systems were turned off due to pump problems. Purple lines represent depth contours of 100 m intervals.



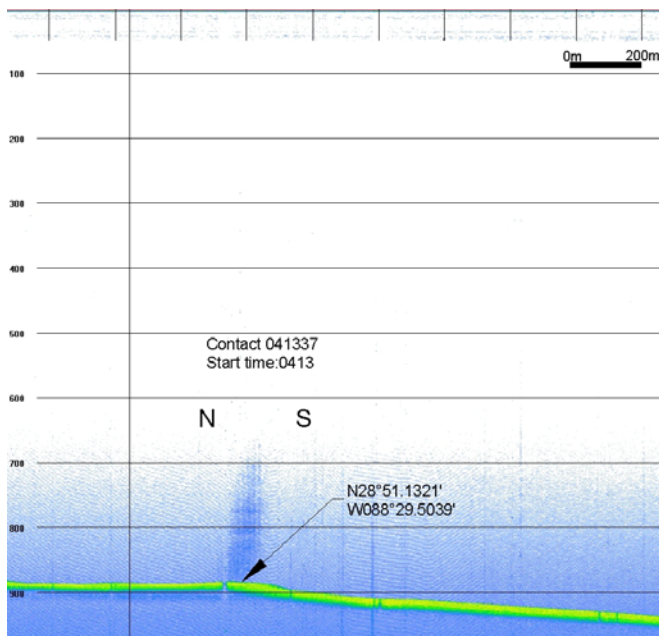
**Figure 5.** This line is oriented initially from Southeast on the left to Northwest and then Westsouthwest to Eastnortheast. a) Contact\_09072010\_021708. Description: Near bottom contact seep investigation. Time (CST): 09/06/2010 21:17:08. Location: 28° 51.0902N, 88° 29.5139W. Depth: 458.9m to 856.3m. b) Contact\_09072010\_022454. Description: Bottom contact. Time (CST): 09/06/2010 21:24:54. Location: 28° 51.1267N; 88° 29.5003W. 544.9m to 881.9m.



**Figure 6.** This line is oriented initially from Northnorthwest on the left to Southsoutheast and then Northeast to Southwest. a) Contact\_09072010\_023513. Description: Near bottom contact. Time (CST): 09/06/2010 21:35:13. Location: 28° 51.1167N, 88° 29.5743W. Depth: 559.6m to 812.3m. b) Contact\_09072010\_024339. Description: Bottom contact. Time (CST): 09/06/2010 21:43:39. Location: 28° 51.1138N; 88° 29.5022W. Depth: 552.5m to 864.2m.

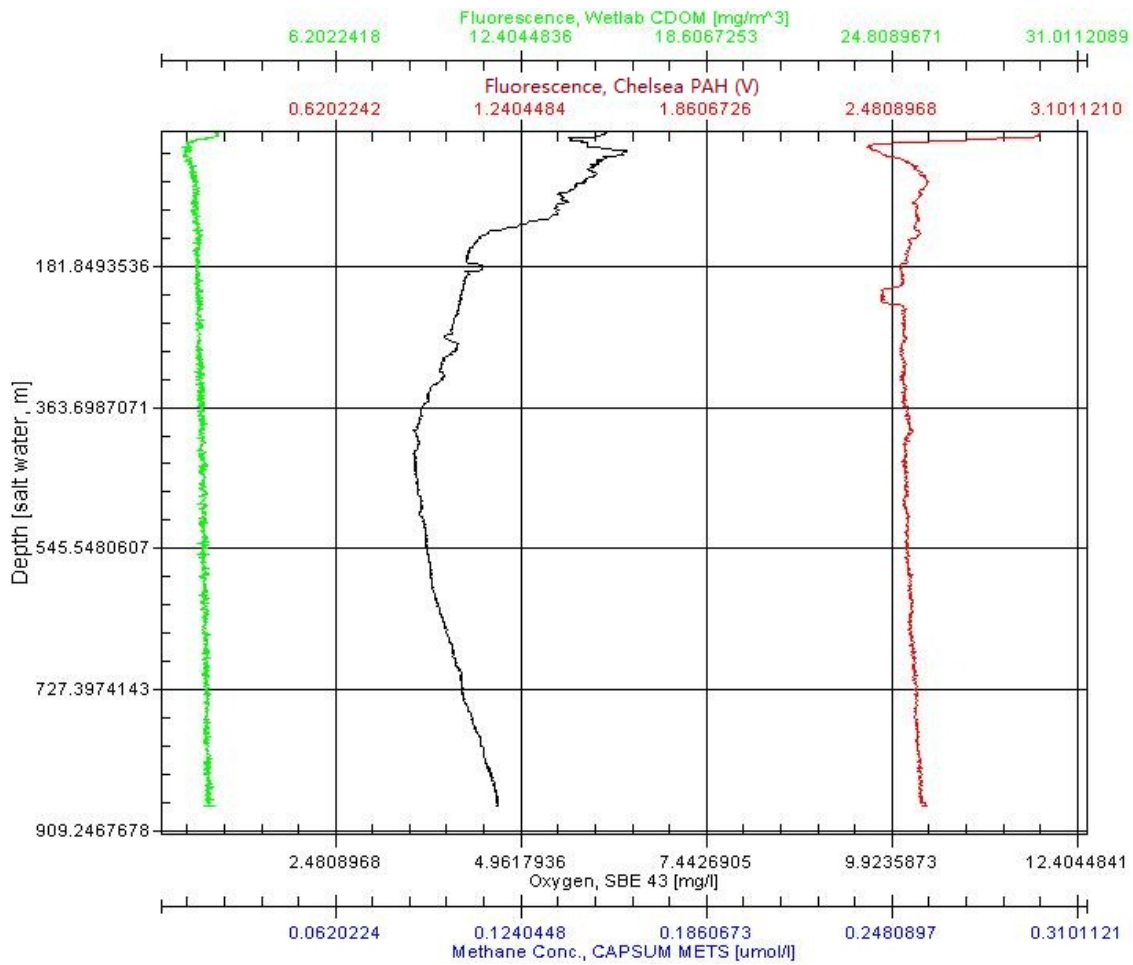


**Figure 7.** This line is oriented initially from Northeast on the left to Southwest. a) Contact\_09072010\_035119. Description: Bottom contact. Time (CST): 09/07/2010 22:51:19. Location: 28° 51.1344N, 88° 29.5103W. Depth: 574.5m to 885.1m.

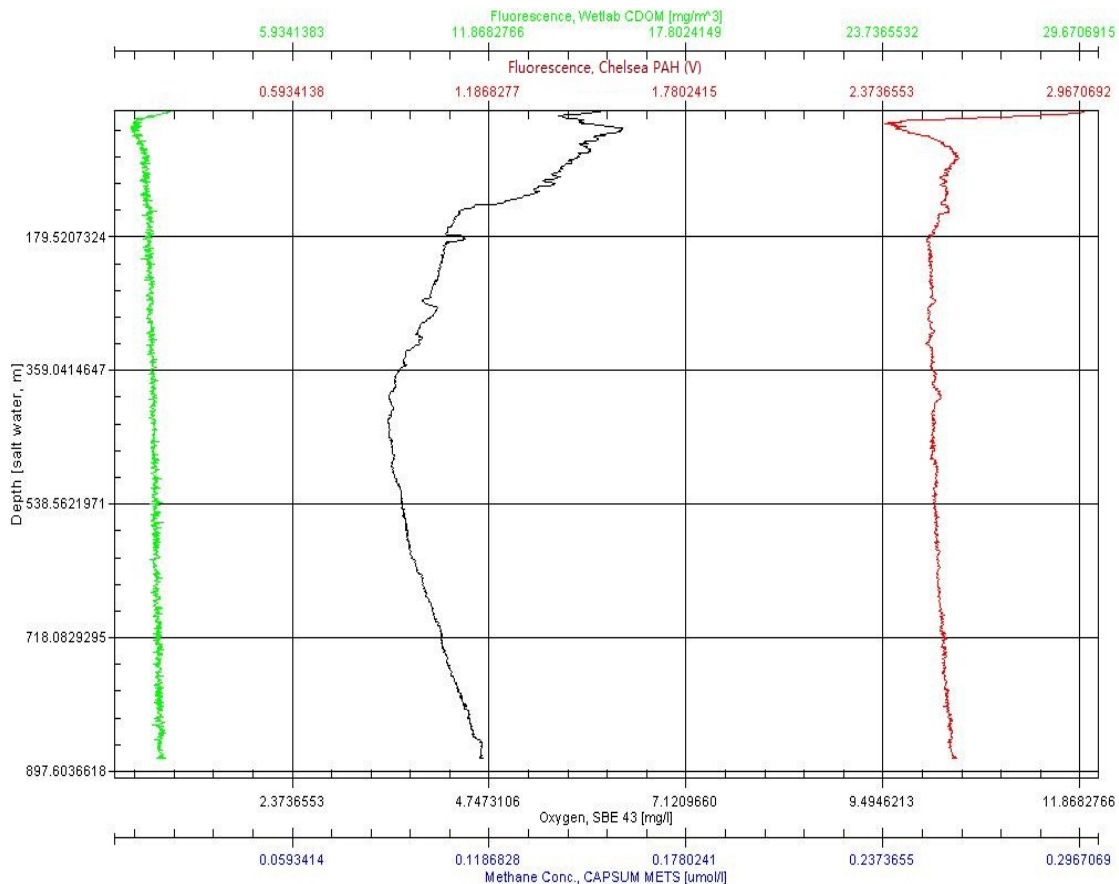


**Figure 8.** This line is oriented from North on the left to south. Contact\_09072010\_041337. Description: Bottom contact. Time (CST): 09/07/2010 23:13:19. Location: 28° 51.1321N, 88° 29.5039W. Depth: 668.6m to 888.9m.





**Figure 9.** CDOM fluorescence, PAH fluorescence, dissolved oxygen, and methane concentration profiles. The results were obtained for Cruise 14 CTD cast 5 down to 880 m. Water samples were collected at 877m, 750m, 600m and 220m. Temperature, conductivity and water depth measurements were also recorded from a SBE 19+ system.



**Figure 10.** CDOM fluorescence, PAH fluorescence, dissolved oxygen, and methane concentration profiles. The results were obtained for Cruise 14 CTD cast 6 down to 890 m. Water samples were collected at 870m, 750m, 600m, 390m and 220m. Temperature, conductivity and water depth measurements were also recorded from a SBE 19+ system.

**Science Operations:**

Observations of sea-surface conditions were made throughout. Two CTD casts were completed around a probable hydrocarbon seep to a depth of 880 m. The EK-60 echo sounder continuously collects data to evaluate the seabed and water column for possible seeps and to relocate seeps for further investigation and potential casting sites. We continue to analyse water samples using the GCMS.

**Problems/operational issues:**

The earliest delivery time for the Methane sensor deep water battery will be Sept. 25<sup>th</sup>.

**Selected Photographs:**

No photographs were taken during the reporting period.

**Planned activities for next 24 hours:**

The Ryan Chouest will continue the cruise 14 route and arrive at port Theodore by Tuesday night. The wave glider team will get on board on Wednesday for the second wave glider deployment in cruise 15.

**Full Crew List:**

Rebecca Tedford	BP	William Smith	MASTER
Eric Houston	BP	Brian Corley	Mate
Brett Bundick	C&C	Mark Harmon	A/B
Mathew Baham	C&C	Ricky Matherne	A/B
Bobby Patrick	C&C	Robert Thompson	ENG
Tim MacEwen	C&C	Patric Cousin	A/B
Craig Smith	C&C	Trever Dorics	A/B
Emily Burke	C&C	Kevin Hartley	Qmed
Xiubin Qi	CSIRO	Jason Bednarski	A/B/Cook
Charlotte Stalvies	CSIRO	Steve Morgan	O/S
Andy Revill	CSIRO	Josh Chauffe	Crane Op
Stephane Armand	CSIRO	Larry Luke	Crane Op
Curtis Walker	Entrix		
Collen Fanelli	NOAA		

**Important Disclaimer**

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